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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/028,860	12/19/2001	Paul B. Koeneman	42390.P12041	4678

7590 07/18/2003

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EXAMINER

ALI, MOHAMMAD M

ART UNIT	PAPER NUMBER
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3744

DATE MAILED: 07/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/028,860

Applicant(s)

KOENEMAN ET AL.

Examiner

Mohammad M Ali

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 June 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 10 and 11 is/are allowed.
- 6) ☒ Claim(s) 1-9, 12-20 and 22-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-4, 6-9, 12- 20 and 22-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Patel (5,396,403) in view of Umezawa et al. (5,023,695). Patel discloses a integrated circuit chips/package comprising an integrated circuit die/thermally conductive plate 19 having an active surface, a cavity 57, substrate 11, solder bumps 17, heat sink 23, cable connection 59 and interposer/chips 13. Patel discloses the invention substantially as claimed as stated above. See Fig. 1 and 4. However, Patel does not disclose cooling fluid. Umezawa et al. teach the use of a cooling fluid 26 to contact and move laterally an active surface 22 in integrated circuits for the cooling purposes. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the integrated circuit of Patel

in view of Umezawa et al. such that a cooling fluid could be provided in order to cool active surface..

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Patel in view of Umezawa et al. as applied to claims 1-4 above and further in view of Lin et al. (6,188,578 B1). Patel in view of Hamilton et al. discloses the invention substantially as claimed as stated above. However, Patel in view of Newton et al. does not disclose an underfill material. Lin et al. teach the use of an underfill material 18 in an integrated circuit package for the purpose of serving an integrated circuit. See Fig. 1. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the integrated circuit chips of Patel in view of Newton et al. and further in view of Lin et al. such that an underfill material could be provided in order to serve the integrated circuit.

Response to Arguments

Applicant's arguments filed 06/17/03/2003 have been fully considered but they are not persuasive. The Applicant argued, "On June 11, 2003, the Examiner and Applicants' attorney discussed proposed claim amendments. The Examiner indicated that amended claims 1, 8, 12, 17 and 27 provided in similar to that submitted herein would be allowable over the referenced cited in the Office Action dated March 17, 2003. Applicant request allowance of claims 2-7, ---- 9 ----13-16 -----18-20 ----22-26 28-29." The Examiner agreed to the above remarks except, The Examiner also mentioned that the remarks are valid for the existing prior art but The Examiner needs further search. Accordingly The Examiner conducted further search and found a new prior art

and a new ground of rejections. Applicant's arguments with respect to claims 1-29 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

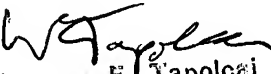
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier from the examiner should be directed to Mohammad M. Ali, whose telephone number is (703) 308-5032. The examiner can be reached from 6:10am to 2:40pm from Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Denise Esquivel, can be reached at (703) 308-2597. The fax number for the organization where this application or proceeding is assigned is 703-308-7764 for regular communications and after-final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0861.


William E. Tapolcai
Primary Examiner
Art Unit 344



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July 15, 2003